JAGUAR

MINING INC.

MANAGEMENT'S DISCUSSION AND ANALYSIS

FOR THE YEAR ENDED
DECEMBER 31, 2019

TABLE OF CONTENTS

MANAGEMENT'S DISCUSSION AND ANALYSIS
FOR THE YEAR ENDED DECEMBER 31, 2019

This Management's Discussion and Analysis ("MD&A") should be read in conjunction with the consolidated annual audited financial statements for the year ended December 31, 2019, and related notes thereto which have been prepared in accordance with International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board (IASB). For further information on Jaguar Mining Inc., reference should be made to its public filings (including its most recently filed annual information form ("AIF") which is available on SEDAR at www.sedar.com). Information on risks associated with investing in the Company's securities and technical and scientific information under National Instrument 43-101 concerning the Company's material properties, including information about mineral resources and reserves, are contained in the Company's most recently filed AIF and technical reports.

All amounts included in this MD&A are in United States dollars ("$"), unless otherwise specified. References to C$ are to Canadian dollars and R$ are to Brazilian Reais. This report is dated as at March 30, 2020.

The Company has included certain non-GAAP financial measures, which the Company believes that, together with measures determined in accordance with IFRS, provide investors with an improved ability to evaluate the underlying performance of the Company. Non-GAAP financial measures do not have any standardized meaning prescribed under IFRS, and therefore they may not be comparable to similar measures employed by other companies. The data is intended to provide additional information and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with IFRS. The non-GAAP financial measures in this MD&A include:

- *Cash operating costs (per ounce sold);*
- *Cash operating cost (per tonne of ore processed);*
- *All-in sustaining costs (per ounce sold);*
- *Average realized gold price (per ounce of gold sold);*
- *Cash operating margin (per ounce sold);*
- *All-in sustaining margin(per ounce sold);*
- *Adjusted operating cash flow;*
- *Adjusted EBITDA;*
- *Free cash flow (per ounce sold);*
- *Working Capital;*
- *Sustaining capital expenditures; and*
- *Non-sustaining capital expenditures.*

Definitions and reconciliations associated with the above metrics can be found in the Non-IFRS Performance Measures section of this MD&A.

Where we say "we," "us," "our," the "Company" or "Jaguar," we mean Jaguar Mining Inc. or Jaguar Mining Inc. and/or one or more or all of its subsidiaries, as it may apply. The following abbreviations are used to describe the periods under review throughout this MD&A:

Abbreviation	**Period**	**Abbreviation**	**Period**
FY 2019	January 1, 2019 – December 31, 2019	**FY 2018**	January 1, 2018 – December 31, 2018
Q1 2019	January 1, 2019 – March 31, 2019	**Q1 2018**	January 1, 2018 – March 31, 2018
Q2 2019	April 1, 2019 – June 30, 2019	**Q2 2018**	April 1, 2018 – June 30, 2018
Q3 2019	July 1, 2019 – September 30, 2019	**Q3 2018**	July 1, 2018 – September 30, 2018
Q4 2019	October 1, 2019 – December 31, 2019	**Q4 2018**	October 1, 2018 – December 31, 2018

OUR BUSINESS

Jaguar Mining Inc. ("Jaguar" or the "Company") is a Canadian-listed junior gold mining, development and exploration company operating in Brazil with three gold mining complexes, and a large land package with significant upside exploration potential. The Company's principal operating assets are located in the state of Minas Gerais and include the Turmalina Gold Mine Complex (Turmalina Gold mine and plant) and Caeté Gold Mine Complex (Pilar Gold Mine, Roça Grande Gold Mine and Caeté plant). The Company also owns the Paciência Gold Mine Complex ("Paciência"), which has been on care and maintenance since 2012. Jaguar's Brazilian assets and operations are held by Jaguar's wholly-owned subsidiary Mineração Serras dos Oeste EIRELI. ("MSOL").

Q4 & FY 2019 FINANCIAL & OPERATING SUMMARY

($ thousands, except where indicated)	Three months ended December 31,		Twelve months ended December 31,	
	2019	2018	**2019**	2018
Financial Data				
Revenue	**$ 28,895**	$ 21,377	**$ 97,234**	$ 94,918
Operating costs	**16,433**	14,014	**59,585**	54,581
Depreciation	**3,909**	4,997	**14,443**	19,208
Gross profit	**8,553**	2,366	**23,206**	21,129
Net income (loss)	**2,687**	(15,065)	**(148)**	(15,968)
Per share ("EPS")	**0.00**	(0.05)	**(0.00)**	(0.05)
EBITDA[1]	**8,001**	(9,189)	**18,763**	7,122
Adjusted EBITDA[1,2]	**8,781**	2,833	**24,333**	20,716
Adjusted EBITDA per share[1]	**0.01**	0.01	**0.03**	0.06
Cash operating costs (per ounce sold)[1]	**780**	795	**806**	732
All-in sustaining costs (per ounce sold)[1]	**1,239**	1,279	**1,349**	1,244
Average realized gold price (per ounce)[1]	**1,372**	1,213	**1,316**	1,274
Cash generated from operating activities	**9,664**	5,180	**24,366**	21,183
Free cash flow[1]	**1,188**	(1,347)	**(7,443)**	(6,836)
Free cash flow (per ounce sold)[1]	**56**	(76)	**(101)**	(92)
Sustaining capital expenditures[1]	**8,476**	6,527	**31,809**	28,019
Non-sustaining capital expenditures[1]	**1,081**	302	**2,289**	2,544
Total capital expenditures	**9,557**	6,829	**34,098**	30,563

[1] Average realized gold price, sustaining and non-sustaining capital expenditures, cash operating costs and all-in sustaining costs, adjusted operating cash flow, free cash flow, EBITDA and adjusted EBITDA, and adjusted EBITDA per share are non-IFRS financial performance measures with no standard definition under IFRS. Refer to the Non-IFRS Financial Performance Measures section of the MD&A.

[2] Adjusted EBITDA excludes non-cash items such as impairment and write downs. For more details refer to the Non-IFRS Performance Measures section of the MD&A.

	Three months ended December 31,		Twelve months ended December 31,	
	2019	2018	**2019**	2018
Operating Data				
Gold produced (ounces)	**20,029**	17,044	**74,084**	75,048
Gold sold (ounces)	**21,060**	17,622	**73,896**	74,530
Primary development (metres)	**1,453**	777	**5,440**	4,455
Secondary development (metres)	**825**	719	**3,166**	2,471
Definition, infill, and exploration drilling (metres)	**12,197**	12,292	**34,899**	42,315

Financial and Operational Summary

Revenue, Gross Profit, Gold Ounces Sold, Operating Costs and Adjusted EBITDA[1]

- Revenue for Q4 2019 increased 35% to $28.9 million, compared with $21.4 million in Q4 2018, due to 20% higher gold sales, and also the 13% increase in the average gold realized price of $1,372/oz. in Q4 2019 as compared to $1,213/oz. for Q4 2018. FY 2019 revenue increased 2.4% to $97.2 million from $94.9 million in FY 2018 due to increase in realized gold price.
- Gross profit for the three and twelve months ended December 31, 2019, was $8.6 million and $23.2 million, respectively, compared to $2.4 million and $21.1 million for Q4 2018 and YTD 2018. Increased profitability in Q4 2019 reflects higher operating production quarter-over-quarter, and also the increase on the average realized gold price for the three and twelve months ended December 31, 2019.
- Gold ounces sold for the three and twelve months ended December 31, 2019, were 21,060 ounces and 73,896 ounces, respectively, compared with 17,622 ounces and 74,530 ounces sold for the comparative periods.
- Operating costs increase 17% and 9% to $16.4 million and $59.6 million in Q4 2019 and FY 2019 respectively, compared with $14 million and $54.6 million in Q4 2018 and FY 2018 respectively. Those cost increases mainly reflect both the increase in tonnes processed by 20% and 9.7% in Q4 2019 and FY 2019 respectively, and the increase in secondary development by 15% and 28% in Q4 2019 and FY 2019 respectively; relative to 2018.
- Adjusted EBITDA for Q4 2019 was $8.8 million compared to $2.8 million for Q4 2018, while adjusted EBITDA for the twelve months of 2019 was $24.3 million compared to $20.7 million in the twelve months of 2018.

Cash Operating Costs[1], Capital Expenditures[1], All-In-Sustaining Costs ("AISC")[1], Operating Cash Flow and Adjusted Operating Cash Flow[1]

- Cash operating costs decreased 2% to $780 per ounce of gold sold for Q4 2019, compared to $795 per ounce sold during Q4 2018, primarily due a 20% increase in gold ounces sold. However, the cash operating costs increased 10% to $806 per ounce of gold sold for FY 2019, compared to $732 per ounce sold during FY 2018 mainly due to lower production and an increase in additional work shift.
- In Q4 2019 and FY 2019, sustaining capital investment increased 29.9% and 13.5% to $8.5 million and $31.8 million, respectively, compared to $6.5 million and $28 million in Q4 2018 and FY 2018, respectively.
- AISC was $1,239 and $1,349 per ounce of gold sold in Q4 2019 and FY 2019, respectively, compared to $1,279 and $1,244 per ounce sold during Q4 2018 and FY 2018, due primarily to increase of investment in sustaining capital.
- Operating cash flow was $9.7 million for Q4 2019, compared to $5.2 million in Q4 2018, and operating cash flow was $24.4 million for FY 2019, compared to $21.2 million for FY 2018 mainly as a result of the devaluation of the Brazilian Real versus the US dollar, and also the increase of the average realized gold price from $1,213 in Q4 2018 and $1,274 FY 2018 to $1,372 in Q4 2019 and $1,316 for the FY 2019.
- Free cash flow was $1.2 million for Q4 2019 based on operating cash flow less capital expenditures, compared to negative $1.3 million in Q4 2018. Free cash flow was $56 per ounce sold in Q4 2019 compared to negative $76 per ounce sold in Q4 2018.

Cash Position and Working Capital

- As at December 31, 2019, the Company had a cash position of $10.9 million, compared to $6.3 million as at December 31, 2018. The December 31, 2019, cash balance excludes a $0.4 million restricted cash deposit associated with the Company's Brazil bank indebtedness.
- As at December 31, 2019, working capital was $9.4 million, compared to $2.4 million deficit as at December 31, 2018, which includes $4.5 million in loans from Brazilian banks, which mature every six months and are expected to be rolled forward.

---

[1] This is a non-GAAP financial performance measures with no standard definition under IFRS. For more details refer to the non-IFRS performance measures section of the MD&A

Private Placement, Repayment of Bridge Facility

On July 8, 2019, the Company closed a non-brokered private placement equity offering for aggregate gross proceeds of $25.0 million. In the three months ended September 30, 2019, the private placement proceeds supported the Company in reducing $14.3 million in financing liabilities, whereas the Company (i) fully repaid its $7.9 million bridge facility loan to Auramet, (ii) repaid $2.1 million in Brazil bank indebtedness, (iii) paid $0.6 million in right-of-use lease liabilities, and (iv) delivered $3.9 million in gold product in fulfillment of its customer advance agreement with Auramet. The remaining $10.3 million funds are planned for (i) capital improvements and infrastructure, (ii) advancing mineral exploration activities in order to increase reserves, and (iii) general corporate and working capital improvement purposes and to meet the Company's commitments.

Tonnes Processed and Average Grade, Gold Production

- Total processing was 214,000 tonnes in Q4 2019 (Q4 2018 – 178,000 tonnes) at an average head grade of 3.32 g/t (Q4 2018 – 3.38 g/t).
  - In Q4 2019, Turmalina processed 99,000 tonnes (Q4 2018 – 75,000 tonnes) at an average head grade of 3.44 g/t (Q4 2018 – 3.56 g/t).
  - Pilar Gold Mine ("Pilar") processed 115,000 tonnes in Q4 2019 (Q4 2018 – 103,000 tonnes) at an average head grade of 3.21 g/t (Q4 2018 – 3.25 g/t).
- Total processed for FY 2019 was 766,000 tonnes (average head grade of 3.41 g/t), as compared to 698,000 tonnes processed in FY 2018 (average head grade of 3.73 g/t).
- Consolidated gold production increased to 20,029 ounces in Q4 2019, compared to 17,044 ounces in Q4 2018, reflecting higher production from Turmalina quarter-over-quarter. Gold recovery was 87.9% in Q4 2019 compared to 88.1% in Q4 2018.
- Pilar production increased 10% to 10,256 ounces in Q4 2019, compared to 9,301 ounces in Q4 2018. Turmalina production increased 26% to 9,773 ounces in Q4 2019, compared to 7,743 ounces in Q4 2018.

REVIEW OF OPERATING AND FINANCIAL RESULTS

Turmalina Gold Mine Complex

Turmalina Quarterly Production

($ thousands, except where indicated)	Q4 2019	Q3 2019	Q2 2019	Q1 2019	Q4 2018	Q3 2018	Q2 2018	Q1 2018
Tonnes of ore processed ('000)	**99,000**	94,000	75,000	65,000	75,000	88,000	77,000	81,000
Average head grade (g/t)[1]	**3.44**	3.05	3.55	3.96	3.56	3.62	3.46	3.57
Average recovery rate (%)	**89%**	90%	91%	90%	90%	90%	91%	91%
Gold (oz.)								
Produced	**9,773**	8,280	7,823	7,525	7,743	9,252	7,824	8,442
Sold	**10,063**	7,399	7,999	8,006	8,206	8,609	7,610	8,414
Cash operating cost (per oz. sold)[2]	**$ 754**	$ 826	$ 766	$ 868	$ 787	$ 722	$ 761	$ 749
All-in sustaining cost (per oz. sold)[2]	**$ 1,282**	$ 1,454	$ 1,465	$ 1,347	$ 1,298	$ 1,181	$ 1,316	$ 1,238
Cash operating cost (R$ per tonne)[2]	**$ 316**	$ 258	$ 320	$ 403	$ 328	$ 279	$ 184	$ 252

[1] The 'average head grade' represents the recalculated head-grade milled.

[2] Cash operating costs, average realized cost and All-in sustaining costs are non-IFRS financial performance measures with no standard definition under IFRS. Refer to the Non-IFRS Financial Performance Measures section of the MD&A.

During the fourth quarter of 2019, Turmalina produced 9,773 ounces of gold compared to 7,743 ounces in the corresponding 2018 period, an increase of 26% or 2,030 ounces. The increase in ounces produced was a result of a 32% increase in the tonnes processed from 75,000 in Q4 2018 to 99,000 in Q4 2019, which was partially offset by a 3% decrease in the average head grade (grams per tonne) from 3.56 in Q4 2018 to 3.44 in Q4 2019. The cash operating cost per ounce sold for the fourth quarter of 2019 decreased by 4%, or $33 per ounce, as compared to the same period in 2018.

Turmalina Capital Expenditures

($ thousands)	**Three months ended December 31,**		**Twelve months ended December 31,**	
	2019	2018	**2019**	2018
Sustaining capital[1]				
Primary development	**$ 4,326**	$ 3,098	**$ 15,182**	$ 13,620
Brownfield exploration	**46**	487	**462**	951
Mine-site sustaining	**935**	611	**3,726**	1,919
Total sustaining capital[1]	**5,307**	4,196	**19,370**	16,490
Total non-sustaining capital[1]	**338**	224	**927**	1,720
Total capital expenditures	**$ 5,645**	$ 4,420	**$ 20,297**	$ 18,210

[1] Sustaining and non-sustaining capital are non-IFRS financial measures with no standard definition under IFRS. Refer to the Non-IFRS Financial Performance Measures section of the MD&A. Capital expenditures are included in our calculation of all-in sustaining costs and all-in costs.

(metres)	Three months ended December 31,		Twelve months ended December 31,	
	2019	2018	**2019**	2018
Primary development	**936**	498	**3,293**	2,560
Secondary development	**455**	155	**1,542**	1,106
Total development	**1,391**	653	**4,835**	3,666
Definition drilling	**977**	1,798	**3,749**	3,307
Infill drilling	**1,032**	6,988	**8,836**	15,148
Exploration drilling	**5,184**	856	**7,950**	10,663
Total definition, infill, and exploration drilling	**7,193**	9,642	**20,535**	29,118

Mining

Located 1.5 hours west of Belo Horizonte, Turmalina is an underground mine that predominantly utilizes sub-level stoping as a mining method. Backfilling is completed using loose rockfill or paste depending upon the situation. Mining rates at Turmalina were low for the first half of 2019 and the later part of 2018. Mine flexibility and realized head grade have been low due to the limited access to core mining areas. The situation evolved out of rock mechanic issues experienced in 2017. Current development and mining practice will provide access to the full orebody, providing a sustainable mining sequence, and providing for the maintenance of stable ground conditions. Moving to a 4-shift-per-day schedule (to deal with legally limited underground working hours of six) was accomplished earlier this year, providing the mine more flexibility to increase production and development.

Currently development is being completed by both Jaguar crews and the mining contractor Toniolo Busnello ("TBSA"). Contractor development is targeted at deepening A-zone access, which opened a new mining panel (A12) at the end of 2019. Jaguar development is focused on accessing C-zone ore, which will open up a new panel higher in the mine in the third quarter of 2020. Development rates have accelerated since the beginning of the year to 1,391 metres (up from 653 in Q4 2018; 894 metres in Q1 2019; and 1,113 metres in Q2 2019). Turmalina demonstrated the needed capacity to move tonnes and complete development at levels that will allow the mine to bring on the sustainable mining panels that will provide adequate stoping options. The new panels will allow the mine to bring the grade back toward the reserve grade.

Mining was challenging all year as access to an adequate mining sequence of stoping blocks was not available. Mining challenges induced significant dilution YTD on what was already a low grade queue of mineable blocks. In Q4 dilution was at the lowest level for the year. Turmalina crews have adapted and with the modification of drilling, blasting, cable bolting, and sill development are bringing all issues into line with normal mining practice. Paste fill is expected to provide a significant advantage in mining the core portion of the orebody in Panel 12 of A-zone. Modifications and additions to the paste fill system will allow improved stope sequencing, and maintain good geotechnical conditions as these ore blocks are removed. Systematic stope sequencing with two new panels (A-zone Panel 12, and C-zone Panel 5) will provide for a solid compliance to plan and provide mine head grades closer to the historical realized grades. Identification of C-central´s potential down plunge extension occurred at the end of the first quarter. The first stope initiated production in September, a good indication of the mine's ability to adjust and quickly capitalize on new opportunities. Turmalina started 2019 with 228,000 ounces of reserves. In-mine Diamond Drilling has been maintained during the year and reserves will be updated during 2020.

Processing

The processing plant at Turmalina is onsite and the C-zone portal is within 200 metres of the crusher grizzly. The plant begins with primary and secondary crushing which feeds a crushed ore bin. The ore bin can feed any of three ball mill circuits. Total milling capacity exceeds 3,000 tonnes per day. The plant currently operates only Mill #3 that can easily handle current and expected mined tonnage rates. The ball mills provide ground ore to the carbon-in-pulp ("CIP") circuit. Recoveries have historically been at 90% plus or minus. The plant is making ongoing improvements to ensure operating confidence as well as minimizing costs at the best recovery possible. Tails are sent to a filtration system from which they can be provided to the paste plant for backfill, or they can go to the dry stack area. The plant is seen as an opportunistic asset for Jaguar because with limited capital it can significantly up throughput. When mine ounce production is raised and maintained at sustainable rates, this will allow the Company to look for additional opportunities in the mine, on its current property and within a reasonable distance.

Turmalina Free Cash Flow[1]

($ thousands, except where indicated)	Three months ended December 31,		Twelve months ended December 31,	
	2019	2018	**2019**	2018
Turmalina Complex				
Revenue	**$ 13,812**	$ 9,955	**$ 44,037**	$ 41,822
Less cash operating costs	**7,590**	6,458	**26,785**	24,757
Less sustaining capital expenditures	**5,307**	4,196	**19,370**	16,490
Free Cash Flow	**$ 915**	$ (699)	**$ (2,118)**	$ 575

[1] This is a non-GAAP financial performance measure with no standard definition under IFRS. For further information, refer to the Non-IFRS Financial Performance Measures section of the MD&A.

The free cash flow for the twelve months ended December 31, 2019, decreased compared to the same period in 2018, primarily as a result of the increase in costs, and also the increase in sustaining capital expenditures, focused mainly in the primary development.

Caeté Gold Mine Complex

Caeté Complex Quarterly Production

The Caeté Mining Complex ("Caeté") includes the Pilar Gold Mine and the Caeté Processing Plant. On March 22, 2018, the Roça Grande mine was placed on care and maintenance. Ore from Pilar is trucked a total distance of approximately 40 kilometres by road to the Caeté plant. The Caeté plant has a capacity of 2,200 tonnes per day and includes gravity, flotation and CIP processing.

Pilar Quarterly Production

($ thousands, except where indicated)	**Q4 2019**	Q3 2019	Q2 2019	Q1 2019	Q4 2018	Q3 2018	Q2 2018	Q1 2018
Tonnes of ore processed (t)	**115,000**	114,000	109,000	95,000	103,000	87,000	94,000	81,000
Average head grade (g/t)[1]	**3.21**	3.50	3.44	3.34	3.25	4.40	4.03	4.13
Average recovery rate (%)	**87%**	86%	87%	86%	87%	90%	90%	89%
Gold (oz.)								
Produced	**10,256**	11,044	10,543	8,840	9,301	11,068	10,995	9,553
Sold	**10,997**	10,018	10,599	8,815	9,416	11,832	9,620	9,929
Cash operating cost (per oz. sold)[2]	**$ 804**	$ 777	$ 802	$ 871	$ 803	$ 557	$ 683	$ 805
All-in sustaining cost (per oz. sold)[2]	**$ 1,092**	$ 1,099	$ 1,065	$ 1,240	$ 1,050	$ 888	$ 967	$ 1,062
Cash operating cost (R$ per tonne)[2]	**$ 317**	$ 271	$ 306	$ 200	$ 280	$ 299	$ 171	$ 320

[1] The 'average head grade' represents the recalculated head-grade milled.

[2] Cash operating costs, average realized cost and All-in sustaining costs are non-IFRS financial performance measures with no standard definition under IFRS. Refer to the Non-IFRS Financial Performance Measures section of the MD&A.

During the fourth quarter of 2019, Pilar produced 10,256 ounces of gold compared to 9,301 ounces in Q4 2018, an increase of 10% due to a 12% increase in tonnes processed. The increase in the tonnes processed from 103,000 in Q4 2018 to 115,000 in Q4 2019 was offset by a 1% decrease in the average head grade (grams per tonne) from 3.25 (g/t) in Q4 2018 to 3.21 (g/t) in Q4 2019.The cash operating cost per ounce sold for the fourth quarter of 2019 was in line compared with the same period in 2018.

Pilar Capital Expenditures

($ thousands, except where indicated)	Three months ended December 31,		Twelve months ended December 31,	
	2019	2018	**2019**	2018
Sustaining capital[1]				
Primary development	**$ 2,127**	$ 1,410	**$ 8,597**	$ 8,487
Brownfield exploration	**68**	161	**266**	610
Mine-site sustaining	**974**	760	**3,576**	2,432
Total sustaining capital[1]	**3,169**	2,331	**12,439**	11,529
Total non-sustaining capital[1]	**634**	56	**1,061**	270
Total capital expenditures	**$ 3,803**	$ 2,387	**$ 13,500**	$ 11,799

[1] Sustaining and non-sustaining capital are non-IFRS financial performance measures with no standard definition under IFRS. Refer to the Non-IFRS Financial Performance Measures section of the MD&A. Capital expenditures are included in our calculation of all-in sustaining costs and all-in costs.

(metres)	Three months ended December 31,		Twelve months ended December 31,	
	2019	2018	**2019**	2018
Primary development	**517**	279	**2,147**	1,895
Secondary development	**370**	564	**1,624**	1,365
Total development	**887**	843	**3,771**	3,260
Definition drilling	**874**	570	**6,206**	3,753
Infill drilling	**782**	1,872	**3,293**	8,336
Exploration drilling	**3,348**	208	**4,865**	411
Total definition, infill, and exploration drilling	**5,004**	2,650	**14,364**	12,500

Mining

Located two hours east of Belo Horizonte, Pilar is an underground mine that predominantly utilizes sub-level stoping as a mining method. Backfilling is completed using loose rockfill, which is utilized exclusively in this mine. Pilar has shown consistent performance for the last two years and is continually pushing performance up. The Pilar team has shown great initiative in working to continually raise the production of the mine. Pilar has positioned itself for sustainable performance at about 4,000 ounces per month. Highly competent ground conditions have allowed for fairly large stoping blocks to be removed, providing large productive mining cycles.

The development rate of 887 metres in Q4 2019 has allowed the mine to maintain several sublevels of development in front of the planned mining sequence. This has provided flexibility to adapt to mining issues, and the ability to continue meeting and exceeding ounce production targets in a sustainable manner. Pilar utilizes the contractor TBSA in the lowest portion of the mine, extending the main ramp and developing new sub-levels. Jaguar crews develop metres in the areas of active mining.

Q4 2019 saw continued strong performance on tonnage at Pilar with 115,000 tonnes milled (114,000 in Q3, 109,000 in Q2 and 95,000 in Q1). Head grades were lower than the YTD average as the mining sequence was in a lower grade cycle. Sequenced mining started in Panel 12 at the end of the quarter. The mine team has done a good job of gradually ramping up production and adapting to the depth added with each new panel. The mine began 2020 with reserves of 211,000 ounces. In-mine Diamond Drilling has been maintained during the year and reserves will be updated during 2020.

Processing

Ore is processed at Jaguar´s Caeté processing plant, which is located approximately 40 kilometres from Pilar. The plant utilizes gravity recovery which recovers about 50% of the gold, followed by a flotation circuit and leaching of the flotation concentrate in a CIP circuit. Historic recoveries have commonly ranged from 85 to 90%. The plant has capacity for approximately 2,200 tonnes per day, and significant opportunity is available for additional feed. The non-sulphide tails (flotation tails) are dry stacked, and leach tails are sent to the Moita Dam. Currently the plant is building a filtration plant for the leach tails, which will be dry stacked with completion of the filter system in Q3 of 2020.

Pilar Free Cash Flow[1]

($ thousands, except where indicated)	Three months ended December 31, 2019	Three months ended December 31, 2018	Twelve months ended December 31, 2019	Twelve months ended December 31, 2018
Pilar				
Revenue	**$ 15,088**	$ 11,422	**$ 53,197**	$ 51,957
Less cash operating costs	**8,843**	7,557	**32,800**	28,713
Less sustaining capital expenditures	**3,169**	2,331	**12,439**	11,529
Free Cash Flow	**$ 3,076**	$ 1,534	**$ 7,958**	$ 11,715

[1] This is a non-GAAP financial performance measure with no standard definition under IFRS. For further information, refer to the Non-IFRS Financial Performance Measures section of the MD&A.

The free cash flow for the twelve months ended December 31, 2019, decreased compared to the same period in 2018, primarily as a result of the increase in the cash operating cost to $811 per ounce of gold sold for FY 2019, compared to $704 per ounce sold during FY 2018, an increase of $107 per ounce sold.

CONSOLIDATED FINANCIAL RESULTS

Quarterly Financial Review[1]

	Q4 2019	Q3 2019	Q2 2019	Q1 2019	Q4 2018	Q3 2018	Q2 2018	Q1 2018
Revenue	**$ 28,895**	$ 22,999	$ 23,923	$ 21,416	$ 21,377	$ 25,426	$ 22,888	$ 25,228
Cost of sales (excluding depreciation)[2]	**(16,433)**	(13,906)	(14,627)	(14,630)	(14,014)	(12,809)	(12,356)	(15,399)
Gross profit (excluding depreciation)[2]	**12,462**	9,093	9,296	6,786	7,363	12,617	10,532	9,829
Net income (loss)	**2,687**	1,141	(2,137)	(1,839)	(15,065)	2,208	(1,334)	(1,781)
Cash flows from operating activities	**9,664**	4,676	7,505	2,523	5,180	6,566	4,079	4,979
Total assets	**200,915**	194,638	184,111	183,352	178,667	178,560	177,262	178,779
Total liabilities	**72,335**	68,613	83,887	81,205	74,812	60,145	61,471	61,783
Working Capital	**9,436**	5,504	(13,091)	(8,328)	(2,411)	1,590	4,025	10,978
Total Debt	**5,592**	5,383	13,969	14,885	9,743	8,070	9,049	14,908
Average realized gold price (per oz.)[2]	**$ 1,372**	$ 1,320	$ 1,286	$ 1,273	$ 1,213	$ 1,244	$ 1,328	$ 1,311
Cash operating cost (per oz. sold)[2]	**$ 780**	$ 798	$ 786	$ 870	$ 795	$ 627	$ 717	$ 800

[1] Sum of all the quarters may not add up to the annual total due to rounding.

[2] Average realized gold price, cost of sales (excluding depreciation), gross profit (excluding depreciation) and cash operating costs are all non-IFRS financial performance measures with no standard definition under IFRS. For further information, refer to the Non-IFRS Financial Performance Measures section of the MD&A.

The increase of 20% in gold sales in Q4 2019 and the relative strength in the global gold market positively impacted the Company's revenue. Current assets increased $3.1 million as at December 31, 2019, compared to December 31, 2018, primarily as a result of the increase in cash and cash equivalents, due to the non-brokered private placement offering and issuing a combined total of 394,117,647 common shares at a price of C$ 0.085 per share in exchange for aggregate gross proceeds of $25.0 million. Current liabilities decreased $8.8 million as at December 31, 2019, compared to December 31, 2018, due to the payment of the senior secured loan facility ("Auramet loan facility") agreement with lender Auramet International LLC. Non-current liabilities increase $6.3 million as at December 31, 2019, compared to the same period of 2018, mainly due to the increase of $3.9 million in Legal and other provisions and $1.3 million in Other liabilities.

Revenue

($ thousands, except where indicated)	Three months ended December 31,			Twelve months ended December 31,		
	2019	2018	Change	**2019**	2018	Change
Revenue	**$ 28,895**	$ 21,377	35%	**$ 97,234**	$ 94,918	2%
Ounces sold	**21,060**	17,622	20%	**73,896**	74,530	(1%)
Average realized gold price[1]	**$ 1,372**	$ 1,213	13%	**$ 1,316**	$ 1,274	3%

[1] Average realized gold price is a non-IFRS financial performance measure with no standard definition under IFRS. For further information, refer to the Non-IFRS Financial Performance Measures section of the MD&A.

Revenue for the three and twelve months ended December 31, 2019 increased 35% and 2% respectively, compared to the same period in 2018, primarily as a result of a 13% and 3% increase in average realized gold price. The market price of gold is a primary driver of our profitability and our ability to generate free cash flow. During the three months ended December 31, 2019, the market price of gold (London PM Fix) traded in a range of $1,452–$1,523, averaged $1,482 per ounce, and closed at $1,523 per ounce on December 31, 2019. The average realized price of $1,372 for the three months ended on December 31, 2019 was lower than the average market price of $1,482 (London PM Fix) due to the repayment of the Company's gold loan with Auramet and the outstanding gold forward contracts associated with current and historical loans with Auramet.

Financial performance upside in Q4 2019 was limited by the gold loan repayments (2,600 ounces at $1,242.42) and settling of forwards/options that held the Company's realized price of gold to the average gold price of $1,372 per ounce. The gold loan and these forward/option contracts were entered during a stressful period of operations in 2018 and earlier this year, primarily due to the bridge loan covenant requirements. Jaguar has an obligation to deliver into the committed forward/option contracts that will impact the company in Q1 2020. Using a mix of spot prices and forwards/options, the realized gold price sold will be more aligned to the spot gold price during the current quarter. Jaguar will be unhedged by end of Q1 2020.

Production

A total of 214,000 tonnes were processed in Q4 2019 (Q4 2018 – 178,000 tonnes) at an average head grade of 3.32 g/t (Q4 2018 – 3.38 g/t), a 20% increase in tonnes of ore processed compared to the same period in 2018. Total production for FY 2019 was 766,000 tonnes (average head grade of 3.41 g/t), as compared to 698,000 tonnes processed in FY 2018 (average head grade of 3.73 g/t).

Consolidated Production Costs

($ thousands, except where indicated)	Three months ended December 31,			Twelve months ended December 31,		
	2019	2018	Change	**2019**	2018	Change
Direct mining and processing cost	**$ 15,003**	$ 13,650	10%	**$ 55,647**	$ 51,738	8%
Mining	**9,924**	9,117	9%	**35,945**	33,664	7%
Processing	**5,079**	4,533	12%	**19,702**	18,074	9%
Royalties, production taxes and others	**1,430**	364	293%	**3,938**	2,843	39%
Royalty expense and CFEM taxes	**962**	790	22%	**3,413**	3,204	7%
NRV adjustment and others	**468**	(426)	(210%)	**525**	(361)	(245%)
Total operating expenses	**$ 16,433**	$ 14,014	17%	**$ 59,585**	$ 54,581	9%
Depreciation	**3,909**	4,997	(22%)	**14,443**	19,208	(25%)
Total cost of sales	**$ 20,342**	$ 19,011	7%	**$ 74,028**	$ 73,789	0%

[1] Cash operating costs is a non-IFRS financial performance measure with no standard definition under IFRS. Refer to the Non-IFRS Financial Performance Measures section of the MD&A.

During the fourth quarter of 2019, total operating expenses increased 17% from $ 14 million in Q4 2018, to $16.4 million in Q4 2019, mostly due to the increase of 20% in the tonnes processed from 178,000 in Q4 2018 to 214,000 in Q4 2019, which was offset by a 2% decrease in the average head grade (grams per tonne) from 3.38 (g/t) in Q4 2018 to 3.32 (g/t) in Q4 2019. The cash operating cost (per ounces sold) decreased 2% from $795 in Q4 2018, compared to $780 in Q4 2019.

For the twelve months ended December 31, 2019, total operating expenses increased 9% from $54.6 million in the twelve months ended December 31, 2018, to $59.6 million in 2019, primarily as a result of the decrease in average head grade from 3.73 (g/t) in FY 2018, to 3.41 (g/t) in FY 2019, partially offset by the 10% increase in the tonnes processed from 698,000 in FY 2018 to 766,000 tonnes processed in FY 2019. The cash operating cost (per ounces sold) increased 10% from $732 in FY 2018, compared to $806 in the same period of 2019.

Other Corporate Expenses

($ thousands)	Three months ended December 31,			Twelve months ended December 31,		
	2019	2018	Change	**2019**	2018	Change
Legal, recoverable tax and other provisions expenses	**$ 1,923**	$ 2,159	(11%)	**$ 4,469**	$ 4,423	1%
General and administrative expenses	**1,079**	1,843	(41%)	**7,767**	8,968	(13%)
Exploration and evaluation costs	**763**	184	315%	**898**	775	16%
Care & maintenance costs (Paciência and Roça Grande mines)	**236**	364	(35%)	**1,194**	2,187	(45%)
Stock-based compensation	**91**	155	(41%)	**505**	1,086	(53%)
Amortization	**29**	32	(9%)	**128**	150	(15%)
Impairment charges	**-**	9,028	(100%)	**-**	9,028	100%
Other operating expenses	**142**	2,052	(93%)	**1,859**	5,163	(64%)
Total operating expenses	**$ 4,263**	$ 15,817	(73%)	**$ 16,820**	$ 31,780	(47%)

Care and Maintenance Costs

Paciência Gold Mine Complex

The Paciência Gold Mine Complex remained on care and maintenance during the fourth quarter of 2018. No gold has been produced since the third quarter of 2012. No underground development or drilling work was carried out by the Company at Paciência during Q4 2019. The complex has been secured and the facilities are preserved and patrolled. A limited maintenance staff turns on the mills and equipment on a monthly basis to maintain the plant in working order. Paciência's carrying amount was written down to nil.

Roça Grande Gold Mine

Due to high operating costs, the Roça Grande Mine was placed on care and maintenance on March 22, 2018. No underground development or drilling work was carried out by the Company at Roça Grande during Q4 2019 and FY 2019. Roça Grande's carrying amount was written down to nil.

General and Administration Expenses

The general and administration ("G&A") expenses exclude mine-site administrative costs that are charged directly to operations and include legal, accounting, costs to maintain offices and personnel in Belo Horizonte, Brazil and Toronto, Canada, and other corporate costs associated with being a publicly-traded company.

($ thousands)	Three months ended December 31,			Twelve months ended December 31,		
	2019	2018	Change	**2019**	2018	Change
Directors' fees	**$ 81**	$ 123	(34%)	**$ 310**	$ 467	(34%)
Audit related and insurance	**180**	241	(25%)	**975**	1,016	(4%)
Corporate office (Toronto)	**196**	419	(53%)	**1,678**	1,943	(14%)
Belo Horizonte office	**622**	1,060	(41%)	**4,804**	5,542	(13%)
Total G&A expenses	**$ 1,079**	$ 1,843	(41%)	**$ 7,767**	$ 8,968	(13%)

For the twelve months ended December 31, 2019, the total G&A expenses decreased 13% compared to the same period in 2018. Costs associated with the Belo Horizonte office were 13% lower in the twelve months ended December 31, 2019. Costs for the corporate office in Toronto were 14% lower for FY 2019 compared to FY 2018 due to cost cutting measures.

Changes in Legal Provisions and Value-Added Tax ("VAT")

($ thousands)	Three months ended December 31,			Twelve months ended December 31,		
	2019	2018	Change	**2019**	2018	Change
Legal and other provisions expense	**$ 2,587**	$ 2,269	14%	**$ 5,856**	$ 6,564	(11%)
(Reversals) to provision against recoverability of VAT and other taxes	**(664)**	(110)	504%	**(1,387)**	(2,141)	(35%)
Total legal, recoverable tax and other provisions expenses	**$ 1,923**	$ 2,159	(11%)	**$ 4,469**	$ 4,423	1%

Legal Provisions

As at December 31, 2019, there were 336 employee-initiated active lawsuits against the Company (December 31, 2018 – 381), largely related to disputed overtime, break/interval and time at disposal. Based on Management's assessment of the likelihood of loss related to 245 lawsuits (December 31, 2018 – 286), the Company has recorded approximately $9.6 million as labour legal provisions, with $2.6 million classified as a current liability as at December 31, 2019 (December 31, 2018 – $9.7 million and $3.9 million, respectively).

During Q4 2019, 19 new lawsuits were initiated. The Company paid approximately $122,000 in appeal deposits and escrow payments, $605,000 in settlement installments, and $164,000 for other costs such as social security, income tax, legal fees and expert fees. The total amount spent in Q4 2019 was $891,000 compared to $1.1 million in Q4 2018.

Recoverable Taxes Provision

The Company is required to pay certain federal value added taxes in Brazil that are based on purchases of consumables and property, plant and equipment. These taxes are recoverable from the Brazilian tax authorities through various methods, including via cash refund or as a credit against payroll, supplier withholding taxes, or other taxes payable.

The Company continues to pursue approval of Federal VAT input tax credits with respect to the years 2008 through 2011 for its MSOL operating subsidiary and included in its Value added and other taxes balance. The Company received a cash refund in the amount of R$3.5 million (approximately $1.0 million) in March 2016, related to MSOL. In July 2016, the Company initiated a lawsuit to obtain a court order to force the tax authority to review the Company's remaining tax credits for MSOL with respect to the years 2008 to 2011, amounting to R$36.0 million (approximately $11.0 million). A court order was granted and by November 2016, the Tax Authority reviewed the claim and granted a favourable decision to partially recognize the amount claimed, deeming R$1.5 million (approximately $0.5 million) due to the Company. The Company collected this amount and proceeded to appeal the Tax Authority´s review result in pursuit of further tax credit refund recognition on the remainder of this claim. At December 31, 2019, the Company is awaiting the Tax Authority´s review result of its appeal to receive the remainder.

In May 2018, the Brazilian federal government ratified a new tax law, Law 13,670/18, which prohibited legal entities from using federal tax credits (PIS and COFINS) to settle its federal income tax and social contribution tax obligations (IRPJ – Imposto de Renda Pessoa Jurídica and CSLL – Contribuição social sobre lucro líquido). The new law was made effective upon ratification and considered immediately applicable to a given company's portfolio of tax credits held. Following the new law's ratification, the Company filed a petition challenging the legality of applying the new law to tax credits accumulated prior to the new law's existence and was successfully awarded a Court order to continue to compensate its IRPJ and CSLL tax obligations with PIS & COFINS tax credits for the calendar year ended December 31, 2018.

In November 2019, the Company received an injunction from Brazil's tax authority stipulating R$14.3 million (approximately $3.6 million) in corporate income and social contribution taxes due retrospectively back to May 2018, including fines and interest. The injunction served to deny the Company's 2018 tax filings which claimed payment on its quarterly corporate income and social contribution tax obligations using Federal VAT tax credits, and, in doing so, overrode the aforementioned 2018 Court order which provided temporary authorization through the year ended December 31, 2018. The Company filed a formal appeal to the injunction in December 2019, received an unfavorable decision from the district court in January 2020. Itfiled another appeal to a superior court in February 2020 and is awaiting review by the judicial authorities. To account for the injunction received which denied the Company's 2018 payments of corporate income and social contribution tax obligations using Federal VAT tax credits, as at December 31, 2019 the Company (i) re-capitalized R$13.6 million (approximately $3.4 million) in Federal VAT tax credit additions, (ii) recognized R$14.3 million (approximately $3.6 million) in tax provisions for estimated income and social contribution taxes due, as detailed in Note 17 and Note 26 in the December 31, 2019, Financial Statements, and (iii) recognized a R$0.7 million (approximately $0.2 million) loss to Other non-operating expenses from fines and interest assessed by the tax authorities.

The Company has recorded a provision against its recoverable taxes in Brazil given the limited methods available to recover such taxes and the length of time it will take to recover such taxes. The provision reduces the net carrying amount of value added taxes and other taxes to their estimated recoverable value. In the year ended December 31, 2018, the Company received the final tax assessments issued by the Brazilian Federal Tax Authority following the conclusion of its audit over the Company's historical Federal VAT input tax credits recognized in fiscal year 2013. Based on the results confirmed, the Company made a change in accounting estimate and reduced its provision criteria for tax credits recognized after January 1, 2012 from 20% as at December 31, 2017 to 5% as at December 31, 2018 and continued as such through December 31, 2019.

Imposto sobre circulação de mercadorias e prestação de serviços ("ICMS") is a type of value added tax which can either be sold to other companies, usually at a discount rate of 15% - 30% , be used to satisfy ICMS tax settlement installments due, or be used to purchase specified machinery and equipment, as subject to approval by government authority. The ICMS credits can only be realized in the state where they were generated; in the case of Jaguar, in the State of Minas Gerais, Brazil.

In December 2019 the Company, with the assistance of an external consultant, completed a comprehensive review of the ICMS tax credits. Pursuant to the results obtained, the Company recognized a R$10.0 million (approximately $2.5 million) write-off of tax credits for those which were determined to hold a higher risk of denial in the event analyzed by the tax authorities.

In the year ended December 31, 2019, the Company started the period with R$5 million (approximately $3.2 million) in ICMS export tax credits authorized and available for sale. The Company received approval from the state tax authority to sell an additional R$10.9 million (approximately $2.7 million), and the Company sold R$15.3 million (approximately $3.8 million) in credits. As at December 31, 2019, the Company held R$0.6 million (approximately $0.1 million) in ICMS export tax credits authorized for sale but not yet sold (December 31, 2018 – R$5 million, approximately $1.2 million).

In June 2018, the Company decided to enter into an Administrative Agreement with the Minas Gerais State Tax authority in order to pay R$8.3 million (approximately $2.2 million) in historical ICMS taxes due, as further detailed in Note 15. In accordance with the agreement, the Company will pay its ICMS debt due in 60 (sixty) monthly installments using ICMS tax credits (non-cash).

Impairment

The Turmalina, Caeté, and Paciência projects are each cash generating units ("CGUs") which include property, plant and equipment, mineral rights, deferred exploration costs, and asset retirement obligations net of amortization. The CGUs also include mineral exploration project assets relating to properties not in production such as mineral rights and deferred exploration costs. A CGU is generally an individual operating mine or development project.

As at December 31, 2019, the Company assessed each CGU for triggers of potential impairment or potential reversal to impairment. In the event such triggers were identified, the Company proceeded to compare the CGU's carrying value to the recoverable amount determined. The recoverable amount was determined to be the fair value less costs to dispose ("FVLCD") and the Company's estimate of the FVLCD is classified as Level 3 in the fair value hierarchy based on the inputs used in the valuation technique.

The significant assumptions used in determining the recoverable amount of the project were LOM production profiles, future gold prices, reserves and resources, discount rates, foreign exchange rates, and capital expenditures. LOM plans are typically developed annually and are based on management's current best estimates of optimized mine and processing plans, future operating costs, and capital expenditures. The Company bases its future gold price estimate with reference to forward prices and industry analyst consensus.

At December 31, 2019, the Company's assessment identified indicators of potential reversal to impairment such as improved operating results at the Caete Project and the Turmalina Project, but no changes in estimate were considered necessary as the Company continues in confirmation and pursuit of further ongoing operational improvements.

Non-Operating Expenses (Recoveries)

($ thousands)	Three months ended December 31,			Twelve months ended December 31,		
	2019	2018	Change	**2019**	2018	Change
Foreign Exchange (Gain)	**$ 645**	$ 417	55%	**$ (627)**	$ (1,187)	(47%)
Financial instruments (Gain) loss	**(1,879)**	263	(814%)	**1,223**	2,441	(50%)
Finance costs	**755**	840	(10%)	**3,469**	3,690	(6%)
Other non-operating expenses	**1,461**	87	1579%	**1,598**	331	383%
Non-operating expenses (recoveries)	**$ 982**	$ 1,607	(39%)	**$ 5,663**	$ 5,275	7%

During the three and twelve months ended December 31, 2019, finance costs mainly represent interest on debt and accretion expense.

Auramet Advance

On May 9, 2018, the Company entered into an agreement with Auramet International LLC for an unsecured customer advance ("Auramet advance") in the form of a gold purchase and sale agreement whereby Auramet extended up to $7 million in minimum prepayment amounts each of $1 million to Jaguar. As part of the agreement, the Company is required to maintain a $2 million margin deposit with Auramet. Funds advanced under the Auramet advance are subject to interest at 1-month LIBOR + 7.5%, and hold a covenant to maintain a minimum net cash balance of $5 million, including the margin deposit.

On September 26, 2019, the Company and Auramet agreed to extend the maturity date from October 31, 2019, to January 31, 2020, whereas the Company had already delivered 3,250 ounces of gold product to Auramet and was obliged to deliver a remaining 2,600 ounces of gold product. The Company incurred $15,000 in finance costs due and paid to Auramet for the extension.

In December 2019, the Company concluded its delivery of the remaining 2,600 ounces to Auramet and, in doing so, fully delivered the remainder of its gold balance due according to the customer advance agreement.

On May 9, 2018, the Company also agreed to a European style gold call option agreement with Auramet whereby the Company granted Auramet an option to purchase up to 7,000 ounces of gold (1,000 ounces per month) at a strike price of $1,450 per ounce on expiration dates maturing monthly between May 2019 and November 2019. As at and for the year ended December 31, 2019, 2,000 ounces in call options were cancelled upon expiration, 5,000 ounces in call options were exercised by Auramet, and nil ounces in call options remained outstanding at period end (2018 – nil, nil and 7,000, respectively).

Taxes

Brazilian Taxes

Brazilian tax regulation involves three jurisdictions and tax collection levels: Federal, State and Municipal. The main taxes levied are: corporate income tax with companies generally subject to income tax at a rate of 25%, social contribution tax on the net profit at a current rate of 9%, and value-added taxes at a rate of 9.25% for PIS/CONFINS and 12–18% for ICMS.

PIS and COFINS are Federal taxes imposed monthly on gross revenue earned by legal entities. The calculation method is, in the Company's case, non-cumulative, under which PIS and COFINS are levied on gross revenue at 1.65% and 7.6%, respectively, with deductions of input tax credits for expenses strictly connected to the company's business and prescribed by the regulating laws. The export of goods and services are exempt provided funds effectively enter the country. PIS and COFINS are due on importations of goods and services from abroad (i.e. PIS-Import and COFINS-Import).

In June 2018, the Company decided to enter into an Administrative Agreement with the Minas Gerais State Tax Authority in order to pay a historical debt (2008–2014) of R$ 8.3 million (approximately $2.2 million) in ICMS. The agreement was ratified by the parties in July 2018. This debt has its origin in ICMS levied on electricity ("Demanda Contratada") in which the Superior Courts have ruled in the taxpayer's favour. The Company had filed an appeal against the levy of the ICMS and the likelihood of the Company losing the appeal was assessed as remote. Although the Company would likely win the judicial lawsuit, the Company took the decision to pay the mentioned debt in instalments, using its tax credits (non-cash), in order to facilitate and accelerate its ICMS credits recovery as cash.

In September 2018, the Company received a social security tax (INSS – Instituto Nacional do Seguro Social) assessment from Brazil's Federal Tax Authority with respect to fiscal years 2014 and 2015, challenging the social security tax rate basis applied by the Company which, as per Brazilian tax legislation, is variable based on the Company's historical work accident rate. The tax assessment claimed entitlement to a total additional R$ 1.9 million (approximately $0.5 million) due from the Company. Upon review, the Company and its legal counsel assessed its probability of loss as more likely than not and entered a settlement agreement with the Federal Tax Authority to reduce its exposure to fines and interest and extend its cash flow impact, agreeing to pay a total of R$ 1.5 million (approximately $0.4 million), in cash, over 60 equal monthly installments starting in October 2018.

As at December 31, 2017, the Company held R$26.0 million ($8.1 million) in value added taxes assets offsetting its IRPJ and CSLL withholding tax provision balance to $nil. In the year ended December 31, 2018, with the change in tax rules, the Company removed its offset treatment. As a result, its value added taxes asset balance increased in additions by R$33.4 million ($8.6 million) as per Note 6 on the Financial Statements of December 31, 2019, and its withholding tax provision balance increased accordingly, recognizing R$1.5 million ($0.4 million) as current and R$31.7 million ($8.2 million) as noncurrent. As at December 31, 2019, the $8.2 million withholding tax provision remained outstanding.

<u>Government Royalty</u>

In July 2017, an executive decree was published increasing the Brazilian royalty that is levied on gold sales, Compensação Financeira pela Exploração de Recursos Minerais ("CFEM"), from 1% to 1.5% effective November 1, 2017. The legislation also outlines a change in the methodology for calculating the royalty from being calculated on gross revenue, less refining charges and insurance, as well as any applicable sales taxes, to being calculated on gross revenue only.

Income and Deferred Taxes Expenses

($ thousands)	Three months ended December 31,			Twelve months ended December 31,		
	2019	2018	Change	**2019**	2018	Change
Current income tax expense	**$ 621**	$ 7	8,771%	**$ 871**	$ 42	1,974%
Income tax expense	**$ 621**	$ 7	8,771%	**$ 871**	$ 42	1,974%

The income tax provision is subject to a number of factors, including the allocation of income between different countries, different tax rates in various jurisdictions, the non-recognition of tax assets, foreign currency exchange rate movements, changes in tax laws and the impact of specific transactions and assessments. Due to the number of factors that can potentially impact the effective tax rate and the sensitivity of the tax provision to these factors, it is expected that the Company's effective tax rate will fluctuate in future periods.

REVIEW OF FINANCIAL CONDITION

Outstanding Debt, Liquidity and Cash Flow

As at December 31, 2019, the Company had a working capital of $9.4 million (negative $2.4 million as at December 31, 2018). Working capital as at December 31, 2019, includes $4.5 million in loans from Brazilian banks ($7.3 million as at December 31, 2018), which mature every six months and are expected to continue to be rolled forward.

	December 31, 2019	December 31, 2018
Cash and cash equivalents	**$ 10,924**	$ 6,275
Non-cash working capital		
Other current assets:		
Restricted cash	**1,418**	5,262
Inventory	**12,701**	12,136
Recoverable taxes	**12,658**	10,421
Other accounts receivable	**590**	566
Prepaid expenses and advances	**1,602**	1,920
Derivatives	**71**	331
Current liabilities:		
Accounts payable and accrued liabilities	**(16,141)**	(17,506)
Notes payable	**(5,592)**	(8,119)
Lease liabilities	**(2,020)**	(1,381)
Customer advances	**-**	(7,000)
Current tax liability	**(599)**	-
Other taxes payable	**(642)**	(503)
Reclamation provisions	**(390)**	(335)
Legal and other provisions	**(4,041)**	(3,871)
Derivative liabilities	**(1,103)**	(607)
Working capital[1]	**$ 9,436**	**$ (2,411)**

[1] This is a non-GAAP financial performance measure with no standard definition under IFRS.

The use of funds during the three and twelve months ended December 31, 2019, is outlined below:

($ thousands)	Three months ended December 31,				Twelve months ended December 31,			
		2019		2018		**2019**		2018
Cash generated from operating activities	**$**	**9,664**	$	5,180	**$**	**24,366**	$	21,183
Investing activities								
Capital expenditures on equipment and brownfield exploration								
Mineral exploration projects	**$**	**-**	$	(60)	**$**	**-**	$	(256)
Purchase of property, plant and equipment		**(9,208)**	$	(6,237)		**(32,230)**	$	(28,738)
Proceeds from disposition of property, plant and equipment		**144**		-		**201**		168
Cash used in investing activities	**$**	**(9,064)**	$	(6,297)	**$**	**(32,029)**	$	(28,826)
Financing activities								
Cash received upon issuance of shares via Finders Warrants redemption	**$**	**-**		352	**$**	**-**		352
Cash received upon issuance of shares via private placement		**(223)**		-		**24,348**		-
Cash received upon issuance of debt		**1,036**		1,678		**9,611**		5,083
Cash received upon issuance of shares via stock options exercised		**-**		-		**20**		-
Cash received upon receipt of customer advances		**-**		-		**-**		7,000
Cash received upon redemption of restricted cash margin deposits		**2,500**		-		**2,500**		-
Repayment of debt		**(4,855)**		-		**(22,595)**		(14,112)
Interest paid		**(224)**		(498)		**(1,243)**		(1,037)
Restricted cash margin deposits paid		**(9)**		(500)		**(385)**		(2,500)
Cash provided by (used in) financing activities	**$**	**(1,775)**	$	1,032	**$**	**12,256**	$	(5,214)
Effect of exchange rate changes on cash balances		**(68)**	$	(311)		**56**	$	504
Net increase (decrease) in cash and equivalents	**$**	**(1,243)**	$	(396)	**$**	**4,649**	$	(12,353)

The $24.4 million results in operating cash flows for FY 2019 is primarily due to the decrease in cash operating costs, which is a result of the cost-cutting measures and the sharp devaluation of the Brazilian Real, with the average exchange rate being R$ 4.12 in Q4 2019 and R$ 3.95 in FY 2019 per US dollar, compared to R$3.81 in Q4 2018 and R$ 3.66 in FY 2018.

Annual Review – Three Year Financial Summary

($ thousands, except per share amounts)		**2019**		2018		2017		Change 2019 vs 2018		Change 2018 vs 2017
Revenue	**$**	**97,234**	$	94,918	$	105,231	$	2,316	$	(10,313)
Gross profit		**23,206**		21,129		13,519		2,077		7,610
Net income (loss)		**(148)**		(15,968)		(2,830)		15,820		(13,138)
Basic (loss) income per share		**(0.00)**		(0.05)		(0.01)		0.05		(0.04)
Current assets		**39,964**		36,911		49,476		3,053		(12,565)
Non-current assets		**160,951**		141,756		134,203		19,195		7,553
Total assets		**200,915**		178,667		183,679		22,248		(5,012)
Current liabilities		**30,528**		39,322		35,344		(8,794)		3,978
Non-current liabilities		**41,807**		35,490		29,949		6,317		5,541
Total liabilities		**72,335**		74,812		65,293		(2,477)		9,519

Revenue for 2019 increased 2% to $97.2 million, compared with $94.4 million in 2018, due to 3% increase in the average realized gold price. Current assets increased $3.1 million as at December 31, 2019 compared to December 31, 2018, primarily as a result of the increase in cash and cash equivalents, is attributed to a $12.3 million net inflow in 2019 financing activities, mainly due to the non-brokered private placement offering and issued a combined total of 394,117,647 common shares at a price of C$ 0.085 per share in exchange for aggregate gross proceeds of $25.0 million, offset by the payment of the Auramet loan facility agreement with lender Auramet International LLC. The cash and cash equivalents was also impacted by a $32 million outflow in capital investment activities, offset by a $24.4 million inflow in cash generated from operating activities.

Contractual Obligations and Commitments

The Company's contractual obligations as at December 31, 2019, are summarized as follows:

As at December 31, 2019	**Less than 1 year**	**1 - 3 years**	**3 - 5 years**	**More than 5 years**	**Total**
Financial Liabilities					
Accounts payable and accrued liabilities[(a)]	$ 16,141	$ -	$ -	$ -	**$ 16,141**
Other Taxes Payable					
ICMS Settlement Due	607	1,166	90	-	**1,863**
INSS	86	171	64	-	**321**
Notes payable					
Principal					
Bank indebtedness[(b)]	4,477	-	-	-	**4,477**
Vale note	1,125	-	-	-	**1,125**
Interest	187	11	-	-	**198**
Lease liabilities	2,198	1,096	139	-	**3,433**
Reclamation provisions[(c)]	397	5,967	7,124	7,498	**20,986**
Current tax liability	599	-	-	-	**599**
Derivative liabilities	1,103	-	-	-	**1,103**
Other liabilities	-	4,245	-	-	**4,245**
Total financial liabilities	$ 26,920	$ 12,656	$ 7,417	$ 7,498	**$ 54,491**
Other Commitments					
Suppliers' agreements[(d)]	171	-	-	-	**171**
Total other commitments	$ 171	$ -	$ -	$ -	**$ 171**
Total	**$ 27,091**	**$ 12,656**	**$ 7,417**	**$ 7,498**	**$ 54,662**

[(a)] Amounts payable as at December 31, 2019.

[(b)] Bank indebtedness represents the principal on Brazilian short-term bank loans which are renewed in 180 day periods.

[(c)] Reclamation provisions - amounts presented in the table represent the undiscounted uninflated future payments for the expected cost of reclamation.

[(d)] Purchase obligations for supplies and consumables - includes commitments related to new purchase obligations to secure a supply of cyanide, reagents, mill balls and other spares. The Company has the contractual right to cancel the mine operation contracts with 30 days advance notice. The amount included in the commitments table represents the contractual amount due within 30 days.

CAPITAL STRUCTURE

The capital structure of the Company as at December 31, 2019, is outlined below:

All amounts in $ thousands, except number of common shares		**As at December 31, 2019**
Bank indebtedness	$	4,477
Leasing Liabilities		2,989
Vale note		1,115
Total debt	**$**	**8,581**
Less: cash and cash equivalents		(10,924)
Total net debt[1]	**$**	**(2,343)**
Number of common shares outstanding		723.9 million

[1] Net debt is a Non-IFRS Performance Measure and is defined as total indebtedness excluding unamortized transaction costs and premiums or discounts associated with debt, less cash and cash equivalents. Net debt provides a measure of indebtedness in excess of the current cash available. The Company reduces gross indebtedness by cash and cash equivalents on the basis that they could be used to pay down debt.

OFF-BALANCE SHEET ITEMS

The Company does not have any off-balance sheet investment or debt arrangements.

RELATED PARTY TRANSACTIONS

The Company incurred legal fees from Azevedo Sette Advogados ("ASA"), a law firm where Luis Miraglia, a director of Jaguar, is a partner. Fees paid to ASA are recorded at the exchange amount, representing the amount agreed to by the parties and included in general and administrative expenses in the consolidated statements of operations and comprehensive income (loss). Legal fees paid to ASA were $19,000 for the year ended December 31, 2019 ($42,000 for year ended December 31, 2018).

During the year ended December 31, 2019, the Company also engaged advisory services from John Ellis, a director of Jaguar. Fees paid to Mr. Ellis are recorded in general and administrative expenses in the consolidated statements of operations and comprehensive income (loss) were $70,000 for the year ended December 31, 2019 ($nil for the year ended December 31, 2018).

DEVELOPMENT AND EXPLORATION PROJECTS

Development Project – Gurupi

<u>Avanco – Gurupi Project Earn-In Agreement</u>

On October 4, 2016, the Company announced that it entered into an earn-in agreement with Avanco Resources Limited ("Avanco"), pursuant to which Avanco may earn up to a 100% interest in the Gurupi Project. On September 17, 2017, Jaguar and Avanco agreed to a revised, accelerated earn-in agreement with Avanco, pursuant to which Avanco will earn up to a 100% ownership interest in the Gurupi Project after meeting some short-term milestones and making a series of payments to Jaguar.

<u>Main Terms of the Revised Accelerated Earn-in Agreement</u>

Upon the satisfactory completion of certain closing conditions, the agreement provides Avanco with the right to acquire 100% of Jaguar's interest in the Gurupi Project by paying to Jaguar an aggregate cash payment of $4 million in two installments of $2 million each ($2 million, due immediately upon signature and $2 million due immediately upon transfer of ownership) and committing to a net smelter royalty due to Jaguar. Jaguar received an initial aggregate cash payment of $4 million, in two installments of $2 million each in September and October 2017. The Company expects to collect the additional $5 million from Avanco in a series of 10 instalments of $500,000 during fiscal year 2020, starting in the month in which Avanco receives "clear title and access" to the project.

Within 24 months of the initial $4 million payment, Avanco will arrange to have published an Australian Joint Ore Reserve Committee (JORC) code compliant technical report regarding the Project with mineral reserves in excess of 500,000 ounces of gold. Any delay in this milestone will result in a project delay fee payable to Jaguar of $250,000 per nine months of delayed period. Within 60 months of the initial $4 million payment, Avanco will aim to commission the Gurupi mine and plant. Any delay in this commissioning milestone will result in a separate project delay fee payable to Jaguar of $250,000 per nine months of delayed period.

Consistent with the original earn-in agreement, Jaguar will retain a life of mine Net Smelter Return ("NSR") royalty ("Royalty") from production at Gurupi. The royalty will be 1% NSR on the first 500,000 ounces of gold or gold ounce equivalents sold; 2% NSR on sales from 500,001 to 1,500,000 ounces of gold or gold ounce equivalents; and 1% NSR on gold sales exceeding 1,500,000 ounces of gold or gold ounce equivalents.

Greenfield Exploration

Jaguar currently holds approximately 64,000 hectares of mineral rights in Brazil. New mining legislation in Brazil has been tabled and the outcome of any mining law reform is, as of yet, unknown. The Company is currently reviewing its greater tenement portfolio with the aim of highlighting opportunities to unlock and leverage unrealized value that can be attributed to a strategic portfolio of advanced, partially tested or untested exploration targets in these areas. This review will inform discussions on future exploration or divestment decisions for these areas. Holding costs of the assets which are considered strategic remain minimal.

Apart from properties in relatively close proximity to the existing mining operations, the only significant greenfield asset within the exploration portfolio is the Pedra Branca target where good grade surface expressions were identified by mapping and channel samples and have led to some 8,000 metres of exploration drilling to date. Due to prior financial constraints, this prospect has remained dormant but offers opportunity for further exploration should funds be available.

Pedra Branca Project

The Pedra Branca Project is located in the State of Ceará in northeastern Brazil and is currently comprised of 24 exploration licences, totalling 38,926 hectares covering a 38-kilometre section of a regional shear zone. Final exploration reports and a Preliminary Economic Analysis ("PEA") have been delivered to the National Department of Mineral Production (DNPM) for three of these licences. The concessions are located in and around municipal areas with good infrastructure. The mineralized structures are open along strike with potential for significant gold mineralization.

The Pedra Branca Project is 100% owned by Jaguar. Based on the acquisition agreement of the project entered into with Glencore Xstrata plc. ("Glencore"), Glencore holds rights to a NSR of 1% on future gold production and rights of first refusal on any Base Metal Dominant Deposit (as defined in the amendment) discovered which, if exercised, would allow Glencore to hold 70% of equity in a newly formed legal entity to hold such rights upon payment of 300% of the Company's exploration expenditures incurred exclusively on the relevant Base Metal Dominant Area of the property.

QUALIFIED PERSON

Scientific and technical information contained in this MD&A have been reviewed and approved by Jonathan Victor Hill, BSc (Hons) (Economic Geology - UCT), Senior Expert Advisor Geology and Exploration to the Jaguar Mining Management Committee, who is also an employee of Jaguar Mining Inc., and is a "qualified person" as defined by National Instrument 43-101 - *Standards of Disclosure for Mineral Projects* ("NI 43-101").

OUTSTANDING SHARE DATA

The following are the issued and outstanding common shares and numbers of shares issuable under share-based compensation and warrants:

	As at March 27, 2020
Issued and outstanding common shares	724,127,839
Stock options	8,601,481
Deferred share units	6,479,167
Total	**739,208,487**

NON-IFRS PERFORMANCE MEASURES

The Company has included the following non-IFRS performance measures in this document: cash operating costs per tonne of ore processed, cash operating costs per ounce of gold sold, all-in sustaining costs per ounce of gold sold, cash operating margin per ounce of gold sold, all-in sustaining margin per ounce sold, Average realized gold price (per ounce of gold sold), Sustaining capital expenditures, Non-sustaining capital expenditures, adjusted operating cash flow, free cash flow, earnings before tax, depreciation and amortization ("EBITDA"), Working Capital, and adjusted EBITDA. These non-IFRS performance measures do not have any standardized meaning prescribed by IFRS and, therefore, may not be comparable to similar measures presented by other companies.

The Company believes that, in addition to conventional measures prepared in accordance with IFRS, certain investors use this information to evaluate the Company's performance. Accordingly, they are intended to provide additional information and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with IFRS. More specifically, Management believes that these figures are a useful indicator to investors and management of a mine's performance as they provide: (i) a measure of the mine's cash margin per ounce, by comparison of the cash operating costs per ounce to the price of gold; (ii) the trend in costs as the mine matures; and (iii) an internal benchmark of performance to allow for comparison against other mines. The definitions of these performance measures and reconciliation of the non-IFRS measures to reported IFRS measures are outlined below.

Reconciliation of Cash Operating Costs, All-In Sustaining Costs and All-In Costs per Ounce Sold

($ thousands, except where indicated)	Three months ended December 31,				Twelve months ended December 31,			
		2019		2018		**2019**		2018
Operating costs (per note 14 of the consolidated FS)	**$**	**16,433**	$	14,014	**$**	**59,585**	$	54,581
General & administration expenses		**1,079**		1,843		**7,767**		8,968
Corporate stock-based compensation		**91**		155		**505**		1,086
Sustaining capital expenditures		**8,476**		6,527		**31,809**		28,019
All-in sustaining cash costs		**26,079**		22,539		**99,666**		92,654
Reclamation - accretion (operating sites)		**23**		-		**31**		47
All-in sustaining costs	**$**	**26,102**	$	22,539	**$**	**99,697**	$	92,701
Non-sustaining capital expenditures		**1,081**		302		**2,289**		2,544
Exploration and evaluation costs (greenfield)		**763**		184		**898**		775
Reclamation - accretion (non-operating sites)		**197**		44		**227**		112
Care and maintenance (non-operating sites)		**236**		364		**1,194**		2,187
All-in costs	**$**	**28,379**	$	23,433	**$**	**104,305**	$	98,319
Ounces of gold sold		**21,060**		17,622		**73,896**		74,530
Cash operating costs per ounce sold	**$**	**780**	$	795	**$**	**806**	$	732
All-in sustaining costs per ounce sold	**$**	**1,239**	$	1,279	**$**	**1,349**	$	1,244
All-in costs per ounce sold	**$**	**1,348**	$	1,330	**$**	**1,412**	$	1,319
Average realized gold price	**$**	**1,372**	$	1,213	**$**	**1,316**	$	1,274
Cash operating margin per ounce sold	**$**	**592**	$	418	**$**	**510**	$	542
All-in sustaining margin per ounce sold	**$**	**133**	$	(66)	**$**	**(33)**	$	30

Reconciliation of Cash Operating Costs, All-In Sustaining Costs per Ounce Sold by Mine Complex/Site

($ thousands, except where indicated)	Three months ended December 31,				Twelve months ended December 31,			
		2019		2018		**2019**		2018
Turmalina Complex								
Operating costs	**$**	**7,590**	$	6,458	**$**	**26,785**	$	24,757
Sustaining capital expenditures		**5,307**		4,196		**19,370**		16,490
All-in sustaining costs[1]	**$**	**12,897**	$	10,654	**$**	**46,155**	$	41,247
Ounces of gold sold		**10,063**		8,206		**33,467**		32,839
Cash operating costs per ounce sold[1]	**$**	**754**	$	787	**$**	**800**	$	754
All-in sustaining cost per ounce sold[1,2]	**$**	**1,282**	$	1,298	**$**	**1,379**	$	1,256
Pilar Mine								
Operating costs	**$**	**8,843**	$	7,557	**$**	**32,800**	$	28,713
Sustaining capital expenditures		**3,169**		2,331		**12,439**		11,529
All-in sustaining costs[1]	**$**	**12,012**	$	9,888	**$**	**45,239**	$	40,242
Ounces of gold sold		**10,997**		9,416		**40,429**		40,797
Cash operating costs per ounce sold[1]	**$**	**804**	$	803	**$**	**811**	$	704
All-in sustaining cost per ounce sold[1,2]	**$**	**1,092**	$	1,050	**$**	**1,119**	$	986

[1] Cash operating costs and all-in sustaining costs are all non-GAAP financial performance measures with no standard definition under IFRS. Results of individual mines may not add up to the consolidated numbers due to rounding.

[2] The AISC calculation by mine site does not include allocation of Corporate (Toronto and Belo Office G&A).

Reconciliation of Free Cash Flow

($ thousands, except where indicated)	Three months ended December 31,		Twelve months ended December 31,	
	2019	2018	**2019**	2018
Cash generated from operating activities	**$ 9,664**	$ 5,180	**$ 24,366**	$ 21,183
Sustaining capital expenditures	**(8,476)**	(6,527)	**(31,809)**	(28,019)
Free cash flow	**$ 1,188**	$ (1,347)	**$ (7,443)**	$ (6,836)
Ounces of gold sold	**21,060**	17,622	**73,896**	74,530
Free cash flow per ounce sold	**$ 56**	$ (76)	**$ (101)**	$ (92)

[1] This is a non-GAAP financial performance measure with no standard definition under IFRS.

Reconciliation of Net Income (Loss) to EBITDA and Adjusted EBITDA

($ thousands, except where indicated)	Three months ended December 31,		Twelve months ended December 31,	
	2019	2018	**2019**	2018
Net Income (loss)	**$ 2,687**	$ (15,065)	**$ (148)**	$ (15,968)
Income tax expense	**621**	7	**871**	42
Finance costs	**755**	840	**3,469**	3,690
Depreciation and amortization	**3,938**	5,029	**14,571**	19,358
EBITDA	**$ 8,001**	$ (9,189)	**$ 18,763**	$ 7,122
Impairment charges	**-**	9,028	**-**	9,028
Changes in other provisions and VAT taxes	**1,923**	2,159	**4,469**	2,226
Foreign exchange loss (gain)	**645**	417	**(627)**	(1,187)
Stock-based compensation	**91**	155	**505**	1,086
Financial instruments (gain) loss	**(1,879)**	263	**1,223**	2,441
Adjusted EBITDA	**$ 8,781**	$ 2,833	**$ 24,333**	$ 20,716

RISKS AND UNCERTAINTIES

The Company is subject to various business, financial and operational risks which could materially adversely affect the Company's future business, operations and financial condition, and could cause such future business, operations and financial condition to differ materially from the forward-looking statements and information contained in this MD&A and as described in the Cautionary Statement on Forward-Looking Information found in this document. The Company is subject to various risks, known and unknown, arising from factors within or outside of its control. This section describes certain of the risks and uncertainties that may have an adverse effect on the Company's business, operations and financial results.

The business of the Company involves significant risk due to the nature of mining, exploration and development activities. Certain risk factors, including but not limited to those listed below, are related to the mining industry in general while others are specific to Jaguar. For a comprehensive discussion of the risks and uncertainties that may have an adverse effect on the Company's business, operations and financial results, refer to the Company's latest AIF, filed with Canadian securities regulatory authorities at www.sedar.com.

I. Risks Relating to the Gold Industry

Gold prices are volatile and there can be no assurance that a profitable market for gold will exist.

Gold prices are volatile and subject to changes resulting from a variety of factors including international economic and political trends, expectations of inflation, global and regional supply and demand and consumption patterns, stock levels maintained by producers and others, currency exchange fluctuations, inflation rates, interest rates, hedging activities and increased production due to improved mining and production methods. While the price of gold has recently been strong, there can be no assurance that gold prices will remain at such levels or be such that Jaguar's properties can be mined at a profit.

Mining is inherently risky and subject to conditions and events beyond Jaguar's control.

Mining involves various types of risks and hazards, including:

- environmental hazards;
- unusual or unexpected geological operating conditions, such as rock bursts, structural cave-ins or slides;
- flooding, earthquakes and fires;
- labour disruptions;
- industrial accidents;
- unexpected mining dilution such as occurred at Turmalina in 2010;
- metallurgical and other processing problems; and
- metal losses and periodic interruptions due to inclement or hazardous weather conditions.

These risks could result in damage to, or destruction of, mineral properties, production facilities or other properties, personal injury or death, environmental damage, delays in mining, increased production costs, monetary losses and possible legal liability.

Jaguar may not be able to obtain insurance to cover these risks at affordable premiums or at all. Insurance against certain environmental risks, including potential liability for pollution or other hazards as a result of the disposal of waste products occurring from production, is not generally available to Jaguar or to other companies within the mining industry. Jaguar may suffer a material adverse effect on its business if it incurs losses related to any significant events that are not covered by its insurance policies.

Calculation of Mineral Reserves and Mineral Resources and metal recovery is only an estimate, and there can be no assurance about the quantity and grade of minerals until mineral resources are actually mined.

The calculation of mineral reserves, mineral resources and corresponding grades being mined or dedicated to future production are imprecise and depend on geological interpretation and statistical inferences or assumptions drawn from drilling and sampling analysis, which might prove to be unpredictable. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. Until mineral reserves or mineral resources are actually mined and processed, the quantity of mineral reserves or mineral resources and grades must be considered as estimates only. Any material change in mineral reserves, mineral resources, grade or stripping ratio at Jaguar's properties may affect the economic viability of Jaguar's properties. In addition, there can be no assurance that metal recoveries in small-scale laboratory tests will be duplicated in larger scale tests under on-site conditions or during production.

II. Risks Relating to Jaguar's Business

Jaguar's operations involve exploration and development and there is no guarantee that any such activity will result in commercial production of mineral deposits.

The proposed programs on the exploration properties in which Jaguar holds an interest are exploratory in nature and such properties do not host known bodies of commercial ore. Development of these mineral properties is contingent upon, among other things, obtaining satisfactory exploration results. Mineral exploration and development involves substantial expenses related to locating and establishing mineral reserves, developing metallurgical processes and constructing mining and processing facilities at a particular site. It also involves a high degree of risk, which even a combination of experience, knowledge and careful evaluation may not be able to adequately mitigate. Few properties that are explored are ultimately developed into producing mines, and there is no assurance that commercial quantities of ore will be discovered on any of Jaguar's exploration properties. There is also no assurance that, even if commercial quantities of ore are discovered, a mineral property will be brought into commercial production, or if brought into production, that it will be profitable. The discovery of mineral deposits is dependent upon a number of factors including the technical skill of the exploration personnel involved. The commercial viability of a mineral deposit is also dependent upon, among a number of other factors, its size, grade and proximity to infrastructure, current metal prices, and government regulations, including regulations relating to required permits, royalties, allowable production, importing and exporting of minerals and environmental protection. The exact effect of these factors cannot be accurately predicted, but any one of these factors or the combination of any of these factors may prevent Jaguar from receiving an adequate return on invested capital. In addition, depending on the type of mining operation involved, several years can elapse from the initial phase of drilling until commercial operations are commenced. Some ore reserves may become unprofitable to develop if there are unfavourable long-term market price fluctuations in gold, or if there are significant increases in operating or capital costs. Most of the above factors are beyond Jaguar's control, and it is difficult to ensure that the exploration or development programs proposed by Jaguar will result in a profitable commercial mining operation.

Fluctuations in currency exchange rates may adversely affect Jaguar's financial position and results of operations.

Fluctuations in currency exchange rates, particularly operating costs denominated in currencies other than U.S. dollars, may significantly impact Jaguar's financial position and results of operations. Jaguar generally sells its gold based on a U.S. dollar price, but a major portion of Jaguar's operating expenses is incurred in non-U.S. dollar currencies. In addition, the appreciation of the Brazilian Real against the U.S. dollar could further increase the dollar costs of gold production at Jaguar's mining operations in Brazil, which could materially and adversely affect Jaguar's earnings and financial condition.

Competition for new mining properties may prevent Jaguar from acquiring interests in additional properties or mining operations.

The gold mining industry is intensely competitive. Significant and increasing competition exists for gold and other mineral acquisition opportunities throughout the world. Some of the competitors are large, more established mining companies with substantial capabilities and greater financial resources, operational experience and technical capabilities than Jaguar. As a result of this competition, Jaguar may be unable to acquire rights to additional attractive mining properties on terms it considers acceptable. Increased competition could adversely affect Jaguar's ability to attract necessary capital funding or acquire an interest in additional operations that would yield mineral reserves or result in commercial mining operations.

Jaguar is exposed to risks of changing political stability and government regulation in the country in which it operates.

Jaguar holds mineral interests in Brazil that may be affected in varying degrees by political instability, government regulations relating to the mining industry and foreign investment therein, and the policies of other nations in respect of Brazil. Any changes in regulations or shifts in political conditions are beyond Jaguar's control and may adversely affect its business. Jaguar's operations may be affected in varying degrees by government regulations, including those with respect to restrictions on production, price controls, export controls, income taxes, expropriation of property, employment, land use, water use, environmental legislation and mine safety. The regulatory environment is in a state of continuing change, and new laws, regulations and requirements may be retroactive in their effect and implementation. Jaguar's operations may also be adversely affected in varying degrees by political and economic instability, economic or other sanctions imposed by other nations, terrorism, military repression, crime, extreme fluctuations in currency exchange rates and high inflation.

Jaguar is subject to additional business and financial risks inherent in doing business in Brazil.

The Company's principal operations and mineral properties are located in Brazil. There are additional business and financial risks inherent in doing business in Brazil as compared to the United States or Canada. Since 1996, Transparency International has published the "Corruption Perceptions Index" ("CPI") annually ranking countries by their perceived levels of corruption, as determined by expert assessments and opinion surveys. The CPI ranks countries on a scale from 100 (very clean) to 0 (highly corrupt). In 2019, out of 180 countries in the world, Canada was ranked 12th with a CPI score of 77, the United States was ranked 23rd with a CPI score of 69, and Brazil was ranked 106th with a CPI score of 35. In 2016, Brazil had a score of 40 and was ranked 79th. The average score on the 2019 Corruption Perceptions Index was 43 out of 100. Anything below 50 indicates governments are failing to tackle corruption and it represents a challenge in those countries requiring extra attention by those who conduct business there.

Corruption does not only occur with the misuse of public, government or regulatory powers, it also can occur in business's supplies, inputs and procurement functions (such as illicit rebates, kickbacks and dubious vendor relationships) as well as the inventory and product sales functions (such as inventory shrinkage or skimming). Employees as well as external parties (such as suppliers, distributors and contractors) have opportunities to commit procurement fraud, theft, embezzlement and other wrongs against the Company. While corruption, bribery and fraud risks can never be fully eliminated, the Company reviews and implements controls to reduce the likelihood of these irregularities occurring. The Company utilizes an internal auditor, third-party security services and closed-circuit video surveillance at its operations in Brazil.

Jaguar is subject to significant governmental regulations.

Jaguar's mining and exploration activities are subject to extensive local laws and regulations. Failure to comply with applicable laws, regulations and permitting requirements may result in enforcement actions thereunder, including orders issued by regulatory or judicial authorities, who may require operations to cease or be curtailed, or corrective measures requiring capital expenditures, installation of additional equipment, or remedial actions. Parties engaged in mining operations may be required to compensate those suffering loss or damage by reason of the mining activities and may have civil or criminal fines or penalties imposed for violations of applicable laws or regulations.

Amendments to current laws, regulations and permits governing operations and activities of mining companies, or more stringent implementation of such requirements, could have a material adverse impact on Jaguar and cause increases in capital expenditures or production costs or reductions in levels of production at producing properties or require abandonment or delays in development of new mining properties.

Jaguar is subject to substantial environmental laws and regulations that may increase its costs and restrict its operations.

All phases of Jaguar's operations are subject to environmental regulations in the jurisdictions in which it operates. These laws address emissions into the air, discharges into water, management of waste and hazardous substances, protection of natural resources and reclamation of lands disturbed by mining operations. Environmental legislation is evolving in a manner that will require stricter standards and enforcement, increased fines and penalties for non-compliance, more stringent environmental assessments of proposed projects and a heightened degree of responsibility for companies and their officers, directors and employees. This is especially true in 2019 following the high-profile Brumadinho dam disaster that occurred on January, 25 2019 when Dam I, a tailings dam at Vale's Córrego do Feijão iron ore mine, 9 kilometres (5.6 mi) east of Brumadinho, Minas Gerais, Brazil, suffered a catastrophic failure. Compliance with environmental laws and regulations may require significant capital outlays and may cause material changes or delays in, or the cancellation of, Jaguar's intended activities. There can be no assurance that future changes in environmental regulation, if any, will not be materially adverse to Jaguar's operations. Specifically, new laws and regulations, amendments to existing laws and regulations, or more stringent enforcement of existing laws and regulations could have a material adverse impact on the Company, increase costs, cause a reduction in levels of production and/or delay or prevent the development of new mining properties.

The properties in which Jaguar holds interests may contain environmental hazards, which are presently unknown to it and which have been caused by previous or existing owners or operators of the properties. If Jaguar's properties do contain such hazards, this could lead to Jaguar being unable to use the properties or may cause Jaguar to incur costs to clean up such hazards. In addition, Jaguar could become subject to litigation should such hazards result in injury to any persons. Jaguar currently has four downstream dams, with one downstream dam having a section permitted to be used as upstream; however, that section of the upstream was never utilized by the Company. There is a risk that the regulatory authorities may impose either operating restrictions or additional expenditures to all of the Company's dams, particularly in relation to the upstream section of the downstream dam.

Internal controls provide no absolute assurances as to reliability of financial reporting and financial statement preparation, and ongoing evaluation may identify areas in need of improvement.

The Company has invested resources to document and assess its system of internal control over financial reporting and undertakes an evaluation process of such internal controls. Internal control over financial reporting are procedures designed to provide reasonable assurance that transactions are properly authorized, assets are safeguarded against unauthorized or improper use, and transactions are properly recorded and reported. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, safeguards with respect to the reliability of financial reporting and financial statement preparation.

As part of the annual audit of the Company's annual financial statements, the Company's external auditor assesses the effectiveness of the Company's internal controls for financial reporting and communicates to the Company's audit committee any significant deficiencies that the external auditor has identified. The Company currently believes that no material weakness exists in regard to its internal controls for financial reporting that result in a reasonable possibility that a material misstatement of Company's financial statements will not be prevented or detected on a timely basis. However, if the Company fails to maintain the adequacy of its internal control over financial reporting, as either the Company's or applicable regulatory standards are modified, supplemented, or amended from time to time, then the Company may not be able to ensure that it can conclude on an ongoing basis that it has effective internal controls over financial reporting. If in the future the Company is required to disclose a material weakness in its internal controls over financial reporting, then this could result in the loss of investor confidence in the reliability of the Company's financial statements, which in turn could harm the Company's business and negatively impact the trading price of its common shares. In addition, any failure to implement required new or improved controls, or difficulties encountered in their implementation, could harm the Company's operating results or cause it to fail to meet its reporting obligations.

Jaguar may need additional capital to accomplish its exploration and development plans or to cover its expenses and maintain adequate working capital, and there can be no assurance that financing will be available on terms acceptable to Jaguar, or at all.

Depending on gold prices and Jaguar's ability to achieve its plans and generate sufficient operating cash flow from its existing operations, Jaguar may require substantial additional financing to accomplish its exploration and development plans, maintain adequate working capital, or fund any non-operating expenses that may arise or become due such as interest, tax (in Canada or Brazil) or other expenses. Failure to obtain sufficient financing, or financing on terms acceptable to Jaguar, may result in a delay or indefinite postponement of exploration, development or production on any or all of Jaguar's properties or even a loss of an interest in a property, or even a loss of an interest in a property, or an inability to pay any of Jaguar's non-operating expenses which could also lead to late fees or penalties, depending on the nature of the expense. The only source of funds now available to Jaguar is through production at Turmalina and Caeté, the sale of debt or equity capital, properties, royalty interests or the entering into of joint ventures or other strategic alliances in which the funding sources could become entitled to an interest in Jaguar's properties or projects. Additional financing may not be available when needed. If funding is available, the terms of such financing might not be favourable to Jaguar and might involve substantial dilution to existing shareholders. If financing involves the issuance of debt, the terms of the agreement governing such debt could impose restrictions on Jaguar's operation of its business. Failure to raise capital when needed could have a material adverse effect on Jaguar's business, financial condition and results of operations.

Jaguar may be subject to litigation.

All industries, including the mining industry, are subject to legal claims, with and without merit. Generally, the labour claims are due to disputed overtime, danger pay, wage parity, etc. The Company may become involved in legal disputes in the future. Defense and settlement costs can be substantial, even with respect to claims that have no merit. Due to the inherent uncertainty of the litigation process, there can be no assurance that the resolution of any particular legal proceeding will not have a material effect on the Company´s financial position or results of operations.

Brazilian labour law is a complex system of statutes and regulations, which in general has a favourable approach to employees of the Company. As such, corporate labour compliance is a key success factor in Brazilian-based operations to minimize the impact of labour claims. The Company has historically not been in full compliance of labour regulations nor did it have the proper procedures in place to support labour claims defences, which led to the bulk of the litigation provisions recorded.

CRITICAL ACCOUNTING ESTIMATES

The preparation of the condensed interim consolidated financial statements in conformity with IFRS requires Management to make estimates, judgments, and assumptions that affect the application of accounting policies and the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the period. Actual results could differ from those estimates. Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimates are revised and in any future periods affected. Certain estimates, such as those related to the assessment of recoverability of the carrying amount of property, plant, equipment and mineral exploration projects, royalty receivable, valuation of recoverable taxes, deferred tax assets and liabilities, reclamation provisions, derivatives, liabilities associated with certain long-term incentive plans, measurement of inventory, provisions for legal actions and contingencies, and disclosure of contingent assets and liabilities depend on subjective or complex judgments about matters that may be uncertain. Changes in these estimates could materially impact the Company's condensed interim consolidated financial statements.

The critical accounting estimates, judgments, and assumptions applied in the preparation of the Company's audited annual consolidated financial statements for the year ended December 31, 2019. For details of these estimates, judgments, and assumptions, please refer to the Company's audited annual consolidated financial statements for the year ended December 31, 2019, which are available on the Company's website and on SEDAR.

CHANGES IN ACCOUNTING POLICIES

The accounting policies applied in the annual audited consolidated financial statements as at December 31, 2019 are consistent with those used in the Company's annual audited consolidated financial statements for the year ended December 31, 2018, except for items listed below, that were effective and adopted as of January 1, 2019:

- IFRS 16 Leases ("IFRS 16") – In January 2016, the IASB issued IFRS 16, which requires lessees to recognize assets and liabilities for most leases. The Company adopted IFRS 16 for the annual period beginning January 1, 2019 using the modified retrospective approach, as detailed in Note 9 on the financial statements for the year ended December 31, 2019. Under the modified retrospective approach, the Company recognizes transition adjustments, if any, in retained earnings on the date of initial application (January 1, 2019), without restating the financial statements on a retrospective basis. For comparative periods prior to 2019, the Company applied leases policies in accordance with IAS 17, Leases (IAS 17) and IFRIC 4, Determining Whether an Arrangement Contains a Lease (IFRIC 4). Note 9 outlines the effect of adopting IFRS 16 requirements on January 1, 2019. The following leases accounting policies have been applied as of January 1, 2019 on adoption of IFRS 16.

  The Company has elected not to recognize right-of-use assets and lease liabilities for short-term leases that have a lease term of 12 months or less and leases of low-value assets. The lease payments associated with these leases are charged directly to the statement of operations and comprehensive income (loss) on a straight-line basis over the lease term.

  At inception of a contract, the Company assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. The Company then assesses (i) whether the contract involves the use of an identified asset, (ii) whether it has the right to obtain substantially all of the economic benefits from use of the asset during the term of the arrangement and (iii) if it has the right to direct the use of the asset. At inception or on reassessment of a contract that contains a lease component, the consideration in the contract is allocated to each lease component proportionally on the basis of their relative standalone prices.

  As a lessee, the Company recognizes a right-of-use asset, which is included in property, plant and equipment, and a right-of-use lease liability at the commencement date of a lease. The right-of-use asset is initially measured at cost, which is comprised of the initial amount of the right-of-use lease liability adjusted for any lease payments made at or before the commencement date, plus any decommissioning and restoration costs, less any lease incentives received.

The right-of-use asset is subsequently depreciated from the commencement date to the earlier of the end of the lease term, or the end of the useful life of the asset. In addition, the right-of-use asset may be reduced due to impairment losses, if any, and adjusted for certain remeasurements of the right-of-use lease liability.

- IFRIC 23 Uncertainty over Income Tax Treatments ("IFRIC 23") – On June 2017, the IASB issued IFRIC 23 Uncertainty over Income Tax Treatments. The interpretation seeks to bring clarity to the accounting for income tax that have yet to be accepted by tax authorities and provides requirements, in addition to the requirements in IAS 12 Income Taxes, by specifying how to reflect the effects of uncertainty in accounting for income taxes. IFRIC 23 is effective for annual reporting periods beginning on or after January 1, 2019, with earlier adoption permitted. The adoption of IFRIC 23 did not affect the financial results or disclosures in the Company's consolidated financial statements.

DISCLOSURE CONTROLS AND PROCEDURES AND INTERNAL CONTROLS OVER FINANCIAL REPORTING

Disclosure Controls and Procedures

Disclosure controls and procedures are designed to provide reasonable assurance that material information is gathered and reported to senior management, including the President and Chief Executive Officer ("CEO") and the Chief Financial Officer ("CFO"), as appropriate to permit timely decisions regarding public disclosure.

The Company's Management, including the CEO and CFO, has as at December 31, 2019, designed Disclosure Controls and Procedures (as defined in National Instrument 52-109 of the Canadian Securities Administrators), or caused them to be designed under their supervision, to provide reasonable assurance that material information relating to the issuer is made known to them by others, particularly during the period in which the interim filings are being prepared; and information required to be disclosed by the issuer in its annual filings, interim filings or other reports filed or submitted by it under securities legislation is recorded, processed, summarized and reported within the time periods specified in securities legislation.

Internal Control over Financial Reporting

Internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of the Company's financial reporting and the preparation of consolidated financial statements in compliance with International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board ("IASB"). The Company's internal control over financial reporting includes policies and procedures that:

- pertain to the maintenance of records that accurately and fairly reflect the transactions of the Company;
- providing reasonable assurance that transactions are recorded as necessary to permit preparation of consolidated financial statements in accordance with IFRS as issued by the IASB;
- ensure the Company's receipts and expenditures are made only in accordance with authorization of management and the Company's directors; and
- providing reasonable assurance regarding prevention or timely detection of unauthorized transactions that could have a material effect on the consolidated financial statements.

An evaluation of the effectiveness of the Company's internal control over financial reporting, including an evaluation of material changes that may have materially affected or are reasonably likely to have materially affected the internal controls over financial reporting based on the criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission, was conducted as of December 31, 2019 by the Company's management, including the Chief Executive Officer and Chief Financial Officer. Based on this evaluation, management, including the CEO and the CFO, has concluded that the Company's internal control over financial reporting was effective as of December 31, 2019.

Limitations of Controls and Procedures

The Company's Management, including the CEO and CFO, believe that disclosure controls and procedures and internal control over financial reporting, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Furthermore, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, they cannot provide absolute assurance that all control issues and instances of fraud, if any, within the Company have been prevented or detected. These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur because of simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people, or by unauthorized override of the controls. The design of any control system also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain statements in this MD&A constitute "forward-looking information" within the meaning of applicable Canadian securities legislation. This forward-looking information includes, but is not limited to, statements concerning the Company's future objectives, Measured and Indicated Mineral Resources, Proven and Probable Mineral Reserves, their average grade, the commencement period of production, cash operating costs per ounce and completion dates of feasibility studies, gold production and sales targets, capital expenditure costs, future profitability and growth in mineral reserves. Forward-looking information can be identified by the use of words such as "are expected," "is forecast," "is targeted," "approximately," "plans," "anticipates," "projects," "anticipates," "continue," "estimate," "believe" or variations of such words and phrases or statements that certain actions, events or results "may," "could," "would," "might," or "will" be taken, occur or be achieved. Forward-looking information involves known and unknown risks, uncertainties and other factors which may cause the actual results or performance to be materially different from any future results or performance expressed or implied by the forward-looking information. These factors include the inherent risks involved in the exploration and development of mineral properties, the uncertainties involved in interpreting drilling results and other geological data, fluctuating gold prices and monetary exchange rates, the possibility of project delays and cost overruns or unanticipated costs and expenses, uncertainties relating to the availability and costs of financing needed in the future, uncertainties related to production rates, timing of production and the cash and total costs of production, changes in applicable laws including laws related to mining development, environmental protection, and the protection of the health and safety of mine workers, the availability of labour and equipment, the possibility of civil insurrection, labour strikes and work stoppages and changes in general economic conditions. Although the Company has attempted to identify important factors that could cause actual actions, events or results to differ materially from those contained in forward-looking information, there may be other factors that could cause actions, events or results to differ from those anticipated, estimated or intended.

This forward-looking information represents the Company's views as of the date of this MD&A. The Company anticipates that subsequent events and developments may cause the Company's views to change. The Company does not undertake to update any forward-looking information, either written or oral, that may be made from time to time by, or on behalf of the Company, subsequent to the date of this discussion, other than as required by law. For a discussion of important factors affecting the Company, including fluctuations in the price of gold and exchange rates, uncertainty in the calculation of mineral resources, competition, uncertainty concerning geological conditions and governmental regulations and assumptions underlying the Company's forward-looking information, see "CAUTIONARY NOTE REGARDING FORWARD LOOKING STATEMENTS" and "RISK FACTORS" in the Company's Annual Information Form for the year ended December 31, 2019, that can be accessed under the profile of Jaguar Mining Inc. on SEDAR at www.sedar.com. Further information about the Company is available on its corporate website at www.jaguarmining.com.